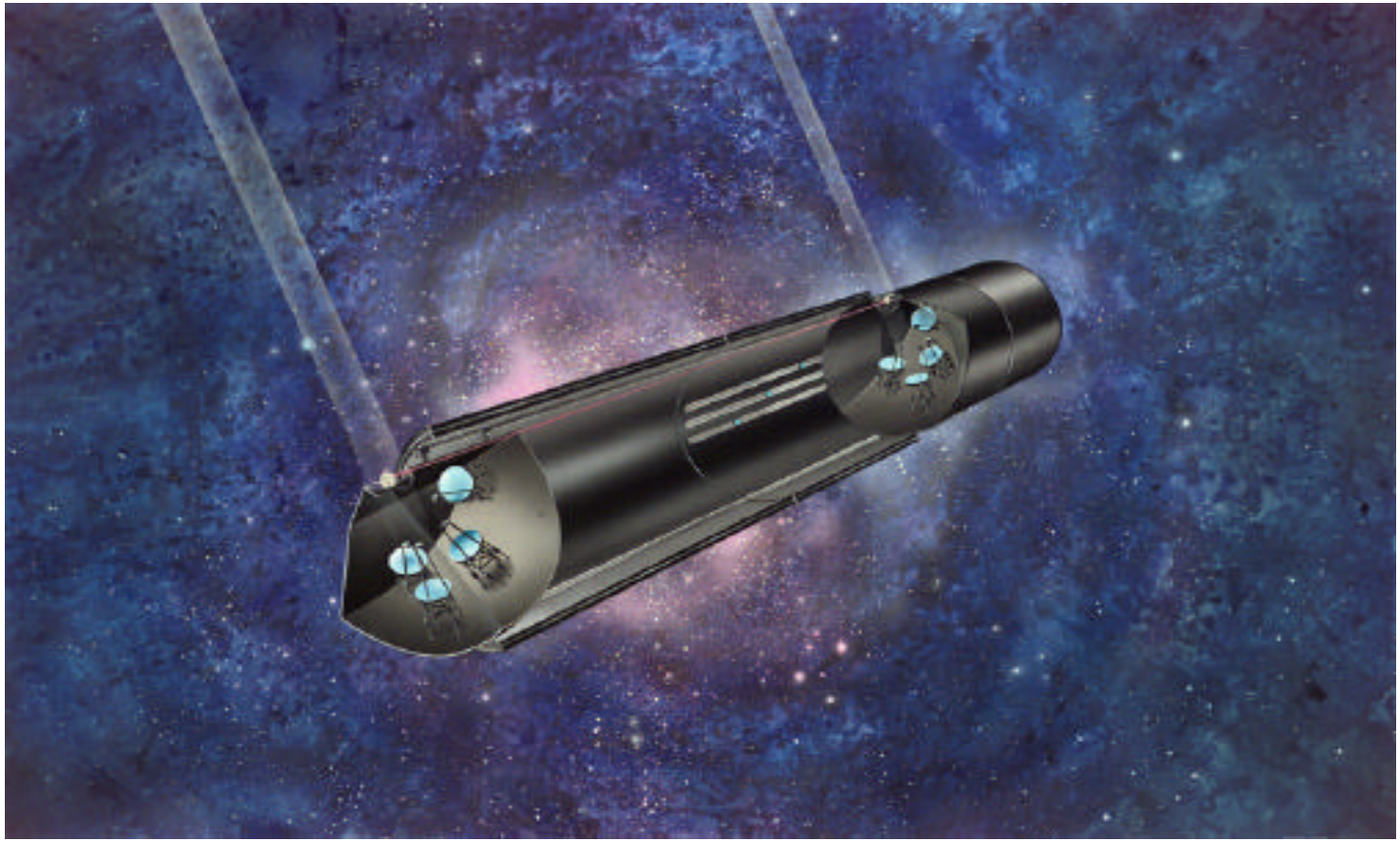
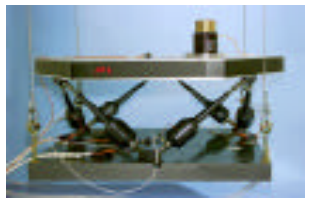
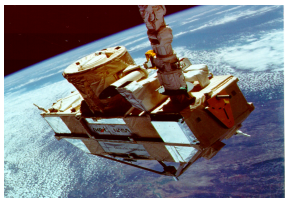


Space Interferometry Mission (SIM)
Industry Briefing

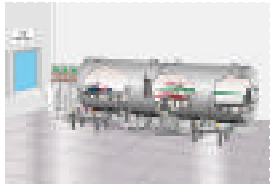
March 16, 1998











Space Interferometry Mission (SIM)
Procurement Strategy

Ben A. Parvin

March 16, 1998

S I M

Space Interferometry Mission

AGENDA

- Background
- SIM Project Responsibility
- Approach
- Relation to Past Procurements
- Description of Work
- Target Milestones
- Estimated Funding Profile
- Source Selection Intention
- RFP Concept
- Procurement Information System
- Take Away Chart

Background

- *Ten-meter baseline optical interferometer built on a quiet, stable platform. Launch June 2005 aboard Delta III or EELV to ETO.*
- *Major scientific and technical objectives:*
  - *Search for other planetary Systems.*
  - *Calibrate distances and ages in the universe.*
  - *Study evolution of stars and star clusters in our galaxy.*
  - *Study evolution of active galactic nuclei.*
  - *Study the structure of circum-stellar disks.*
  - *Technology precursor to the Terrestrial Planet Finder (TPF) Mission.*

SIM Project Major responsibilities

- *Define and manage the Instrument System (IS) and Spacecraft (S/C) configuration consistent with the launch vehicle and science requirements.*
- *Develop The IS and S/C system and subsystem requirement flow down.*
- *Identify high risk areas and focus technology development effort to mitigate risks prior to Development Phase C/D.*
  - *Mathematical models to predict on-orbit performance.*
  - *Critical components breadboard and brassboard.*
  - *Ground testbeds, where full complexity in-air performance is tested.*
- *Develop and test IS and S/C systems .*
- *Perform Assemble, Test, and Launch Operation (ATLO).*
- *Operate Instrument-S/C for minimum of 5 year mission life.*

Approach

- *Develop partnership with private industry to define and implement SIM through definition (A/B), development (C/D) and operation (E) phases.*
- *Establish two work packages resulting in one or two contracts.*
  - *IS Industry Partner (IIP) work package, JPL lead.*
  - *S/C-ATLO Industry Partner (SIP) work package, IP lead.*
- *Conduct technical and programmatic reviews and develop performance metrics (Earned Value reporting structure).*

Relation to Past procurements

- *SIM Project competitively selected and funded 3 industry teams in FY '97 to participate in baseline design and costing*
  - *Ball Aerospace, Boeing, Smithsonian Astrophisical Observatory, and University of Colorado*
  - *Lockheed Martin and Honeywell*
  - *TRW, Kodak, HDOS, and Science Consultants*
- *Industry teams have continued regular participation in SIM system engineering activities under their own funding after completion of the contract*

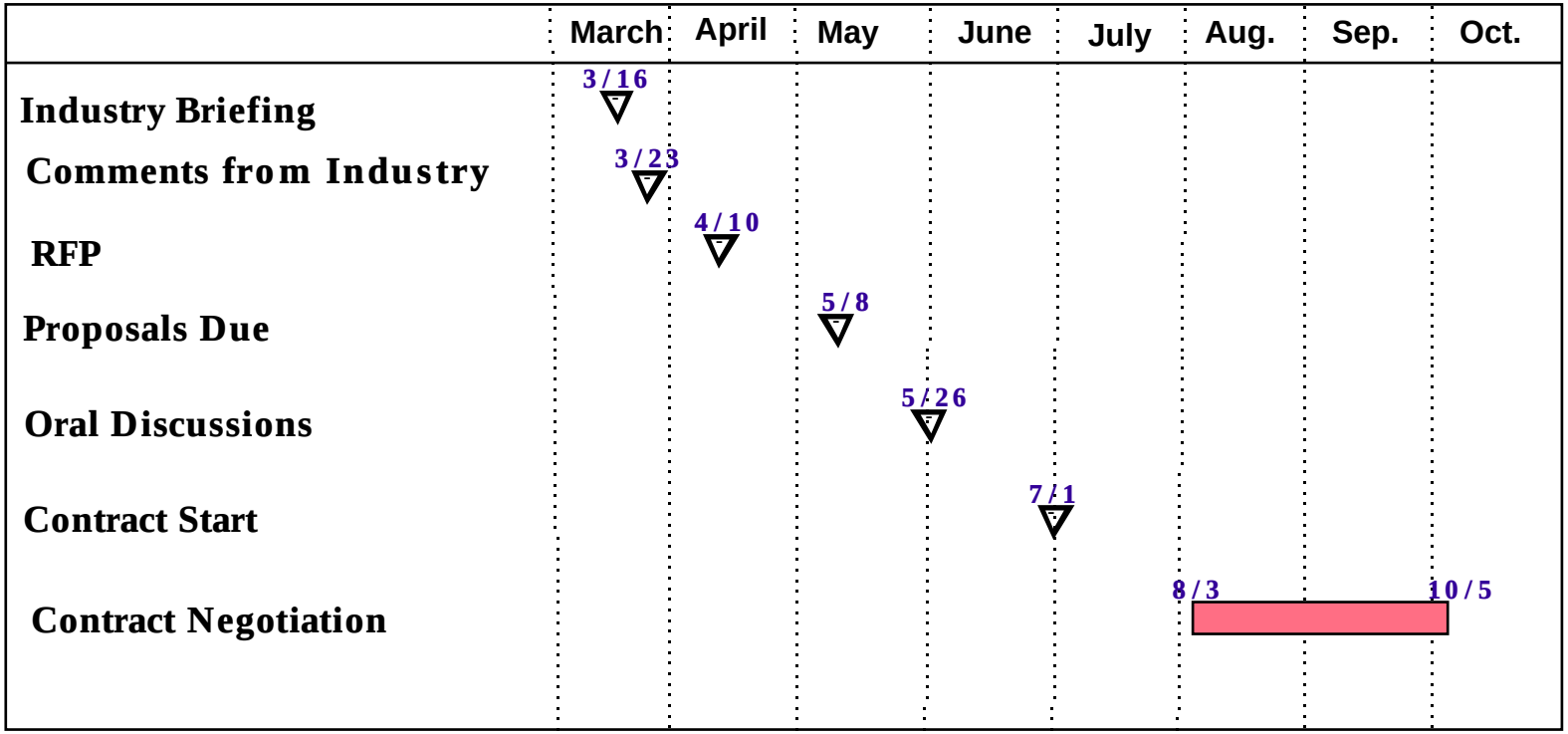
Description of Work

- *Major Activities of the IIP work package:*
  - *Provide a Core Team with collocated members at JPL to the extent necessary.*
  - *Support the SIM Project definition (A/B) phase, system engineering.*
  - *Participate in design and development of testbeds.*
  - *Fabricate some testbed subsystem elements based on joint JPL-IP recommendation.*
  - *Support testbed Integration and Test (I&T).*
  - *Support the SIM Project development phase (C/D), system and subsystem design*
  - *Fabricate some or all of the flight subsystem elements based on joint JPL-IP recommendation.*
  - *Support SE implementation and flight system I&T.*
  - *Support SIM operation for a minimum 5-year mission.*

Description of Work

- *Major Activities of the SIP work package (No launch vehicle procurement):*
  - *Provide a Core Team with collocated members at JPL to the extent necessary.*
  - *Support the SIM Project definition (A/B) phase. system engineering.*
  - *Participate in design and development of structure for testbeds.*
  - *Fabricate some testbed subsystem elements based on joint JPL-IP recommendation.*
  - *Support testbed Integration and Test (I&T)*
  - *Support the SIM Project development phase (C/D), system and subsystem design.*
  - *Fabricate all of the flight subsystem elements, S/C and Structure.*
  - *Support SE implementation and flight system I&T.*
  - *Conduct ATLO activities through launch plus 30 days*
  - *Support SIM operation for a minimum 5-year mission.*

Target Milestones



SIM

Space Interferometry Mission

Estimated Funding Profile

Organization	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	TOTALS
		B Start		C/D Start				Launch						
IIP	3.50	7.50	11.00	20.00	20.00	27.00	20.50	3.00	2.50	2.50	2.50	2.50	2.50	125.00
SIP	1.70	8.00	5.00	5.30	24.50	40.50	24.50	18.00	2.50	2.50	2.50	2.50	2.50	140.00
LV (Delta III)						37.40	45.60	26.40						109.40
Ind Subtotal	5.20	15.50	16.00	25.30	44.50	104.90	90.60	47.40	5.00	5.00	5.00	5.00	5.00	374.40
% no Res subtotal:	14%	49%	38%	32%	49%	77%	83%	53%	16%	15%	15%	14%	28%	49%
JPL or other ctr	31.50	16.30	25.70	54.70	45.60	30.50	19.00	42.40	26.70	28.80	28.00	29.70	12.80	391.70
Subtotal w/o Res:	36.70	31.80	41.70	80.00	90.10	135.40	109.60	89.80	31.70	33.80	33.00	34.70	17.80	766.10
Reserves:					18.00	14.70	28.60	41.40						102.70
TOTAL:	36.70	31.80	41.70	80.00	108.10	150.10	138.20	131.20	31.70	33.00	33.80	34.70	17.80	868.80

All Reserves held at JPL

Source Selection Intention

- *Compete and award contract to select IIP and SIP Partner (s).*
  - *Initial contract (s) will start in July 98 and goes to end of definition phase (A/B).*
  - *Initial contract will be amended throughout the definition phase (A/B) to assign responsibility for inclusion of items jointly agreed to, such as;*
    - *STB-3 Starlight Collector POD.*
    - *STB-3 Starlight Combiner POD.*
    - *STB-3 Precision Structure.*
    - *STB-3 Ground Support Equipment (GSE).*
- *Establish the right to continue into phase C/D with partner (s)*
  - *Negotiate phase C/D.*
- *Reserve flexibility to select a single partner for both work packages or to award each work package to separate partners.*

RFP Concept

- One RFP covers both work packages
  - Instrument Work Package
  - S/C-ATLO Work Package

- General work package instructions
  - Propose full project life cycle implementation plan
    - Identify implementation concept
    - Provide detailed implementation plan
    - Provide implementation plan cost within provided budget cap
  - Propose management plan in teaming environment
  - Propose risk management plan

Procurement Information System

- ***"Project documents" available and maintained at SIM Webpage.***
  - ***URL: http://sim.jpl.nasa.gov/sim***
    - ***Science Requirements Document (SRD), Draft***
    - ***Project System Requirements Document (PSRD), Draft***
    - ***Instrument System Requirements Document (ISRD), Draft***
    - ***Spacecraft System Requirement Document (SCRD), Draft***
    - ***Mission System Requirement Document (MSRD), Draft***
    - ***SIM Technology Plan, Ver. 1.0***

Take Away Chart

- ***Respond to the following by March 23, 1998:***
  - ***Feedback on form of the Contract and Incentive Structure.***
  - ***Suggestions on selection criteria.***
  - ***Responsibility issues with regard to work package breakdown.***
    - ***Is the split reasonable and if not why?***
  - ***Would the Project benefit from inclusion of the launch vehicle in the work packages and why?***